IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: application of:	)	Group Art Unit 3641
KIRKLAND D. BROACH et al.	)	Examiner: D.L. Greene Jr.
Serial No. 10/751,349	)	Entitled:
Filed: January 5, 2004	)	NUCLEAR FUEL ASSEMBLY DEBRIS FILTER BOTTOM
Attorney Docket No. ARF 2004-003	)	NOZZLE

April 6, 2006

Eckert Seamans Cherin & Mellott, LLC
600 Grant Street
Pittsburgh, PA 15219

MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Supplemental Declaration Under 37 CFR 1.132

Sir:

As a supplement to the Declaration Under 37 CFR 1.132 of Michael Y. Young dated August 30, 2005, in furtherance of allowance of the above captioned matter, the following Declaration is offered:

I, Michael Y. Young, declare and state:

1. That I have reviewed and understand the contents of the specification of the above captioned application, including the claims as amended by the response to the Office action dated November 16, 2005, which accompanies and references this Supplemental Declaration Under 37 CFR 1.132.

2. That fluid dynamics within the core of a nuclear reactor are complicated by the large number of structures in the path of the coolant, the need to continually maintain contact of the coolant with the fuel cladding to avoid reduced heat transfer and the objective of maximizing heat transfer between the fuel elements and the coolant.

3. That Westinghouse has observed an appreciable difference (20%) in hydraulic pressure drop between nozzles fabricated by two different vendors to design specifications based on the Shallenberger patent. Furthermore, Westinghouse's investigation into the differences concluded that the main cause for these differences were minute geometry differences introduced by removing burrs caused by the chamfer machining operations. The inability to specify, measure, and control these minute geometries caused by burr removal, provided impetus to improve upon Shallenberger.

4. That neither Westinghouse, with approximately 30 years experience producing fuel assembly nozzles, nor its outside fabricators found it obvious that the small geometry changes caused by burr removal could result in 20% variation in hydraulic performance.

5. That through experimentation Westinghouse found that the double chamfered inlet and flared outlet is a way to achieve pressure drop reduction near that of a rounded inlet and venturi outlet while meeting numerous constraints imposed by the performance requirements of the nuclear fuel assembly, such as consistent and uniform flow between assemblies, reasonable manufacturing costs, closely spaced flow holes, and fabrication tolerances.

6. That none of the references relied upon by the Examiner suggest that a venturi profile for the coolant holes formed with a double chamfered inlet in the bottom nozzle of a fuel assembly will not adversely impact the other coolant criteria that need to be fulfilled for satisfactory coolant transport through the nuclear core and still provide the hydraulic margin necessary to accommodate surface anomalies that arise in the manufacturing process.

7. That Westinghouse test results have shown that the double chamfered inlet has been found not to adversely impact the benefit of the venturi profile in the bottom nozzle coolant flow holes, but provides a significant manufacturing savings over the normal venturi gradient profile between the inlet and outlet of the venturi flow holes.

I further declare and state that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,

M Young

Michael Y. Young, Declarant

5/4/2006

Date